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A SUGGESTION AS TO THE GENERIC NOMENCLATURE OF INSECTS.

BY T. D. A. COCKERELL, LONDON, ENGLAND.

Mr. Scudder's recent admirable work on the butterflies of New England has, naturally enough, given rise to fresh discussion of the question of generic nomenclature, without, however, leading to any very decisive result. Mr. Scudder's views on the sub-division of hitherto-accepted generic units are certainly extreme, and probably few will be found to follow him entirely. On the other hand, many no doubt feel that Mr. W. H. Edwards's genera require some sort of sub-division, and would compromise matters by admitting some, and rejecting others, of Mr. Scudder's divisions. Mr. Edwards himself, in his 1884 catalogue, has numbered sub-divisions of many larger genera; thus of *Lycæna* we get groups I. to VII. But these numbers are not adopted by others, partly because different authors treat the subject differently, thus creating confusion, and partly because it is not easy or convenient to use a number instead of a name.

So we come to this conclusion: It is necessary that the larger genera should be sub-divided, but it is highly unadvisable to call all those sub-divisions genera. We therefore need a system of section or group-names which shall be uniform, used generally,—not, like the numbers, variable according to the fancy of the author,—and yet not of the nature of genera or sub-genera.

In the treatment of *Carex* by the botanists I think we see a similar problem solved. *Carex* is a huge genus, which even after a reasonable amount of subgeneric division, needs further grouping to be made intelligible. So, Fries, Drejer, Tuckerman and others have proposed section-names: *Flexiles*, *Paniceæ*, *Sigitatæ*, etc. These names are always in the plural, and have nothing to do with sub-genera or genera properly speaking, nor does any trouble arise about priority, provided the name has not been used before in the same genus. The groups may not

be all of equal value, and there are sections again sub-divided into sections. This system is not new, and I believe it to be very useful, allowing us to recognize the natural sub-divisions of genera, without being obliged to make genera of them. I have already adopted these section-names in a list of North American land-shells now ready for printing, and have thereby been able to reduce the number of so-called sub-genera without refusing to notice the natural groups they represent. I derived my section-names when convenient from a prominent species of the group, or in other cases, by adopting a descriptive term, or turning a sub-generic name into a plural section-name.

Before writing this paper, I wrote to Mr. W. H. Edwards, telling him of my idea for getting out of the present difficulty. He comments favourably on the suggestion, and writing of Mr. Scudder's "genera," made by sub-division of *Colias*, etc., he says: "I consider them groups merely, or sub-groups. All *Anthocharis*, I think, should be one [genus], all *Argynnis* one, all *Colias* one. If numbers can't be accepted, I am perfectly willing to try the section-names as you suggest * * *. By-and-by I propose to give a new edition of my catalogue, and then I may adopt the plan throughout. It would save us from fifty genera in *Pamphila* at once." (*in litt.*, May 17, 1890.)

Should Mr. Edwards decide to adopt section-names, we can hardly do better than leave him to decide about the sections and choose appropriate names; but to illustrate the point I will here treat a few "genera" as proposed:—

W. H. EDWARDS.	SCUDDER.	PROPOSED SECTION-NAME.
<i>Papilio</i> , group V.	<i>Jasoniades</i> .	<i>Turni</i> .
<i>Colias</i> , group I.	<i>Zerene</i> .	<i>Cæsoniae</i> .
<i>Vanessa</i> , pars.	<i>Euvanessa</i> .	<i>Antiope</i> .
<i>Pamphila</i> , group II., pars.	<i>Erynnis</i> .	<i>Erynnæ</i> .
<i>Thecla</i> , group IV., pars.	<i>Incisalia</i> .	<i>Incisalæ</i> .
<i>Lycæna</i> , group V.	<i>Rusticus</i> .	<i>Rustici</i> .
<i>Chrysophanus</i> , group III.	<i>Heodes</i> .	<i>Chrysophanuli</i> .

As will be seen, the first three names are taken from prominent species; the second three from the so-called genera, and the last from a character of the group. It may be found advisable, at least as often as possible, to adopt the name from a species; but some specific names, as *paweschiek*, *pawnee*, etc., would be rather difficult to render plural, not to

speak of the objection to increasing the use (as section-names) of such extraordinary appellations. The plural termination, I should think, ought always to be Latinised.

The same principle may, of course, be applied to other groups of insects. Such genera as *Agrotis*, *Pterostichus*, *Tipula*, *Bombus*, etc., might be well sectionised.

PRELIMINARY CATALOGUE OF THE ARCTIIDÆ OF TEMPERATE NORTH AMERICA, WITH NOTES.

BY JOHN B. SMITH, NEW BRUNSWICK, N. J.

(Continued from page 168, Volume xxii.)

E. elegans Str.

- 1873—Stretch, Zyg. & Bomb., 189, pl. 8, f. 6, *Euchaetes*.
- 1875—Butler, Cist. Ent., II., 37, *Euchaetes*.
- 1876—Stretch, Wheeler's Rept. Surv., west 100 mer., V., 797, pl. 40, ff. 5 and 6, *Euchaetes*.
- 1882—Grt., CAN. ENT., XIV., 196, *Euchaetes*.
- Habitat—California, Owens Valley.

E. immaculata Graef.

- 1887—Graef., Ent. Amer., III., 42, *Euchaetes*.
- Habitat—Florida.

E. inopinatus Hy. Edw.

- 1882—Edw., Papilio, II., 13, *Euchaetes*.
- Habitat—Florida.

E. murina Stretch.

- 1885—Stretch, Ent. Amer., I., 106, *Euchaetes*.
- 1887—Graef., Ent. Amer., III., 142, *Euchaetes*.
- Habitat—Arizona, Texas.

E. oregonensis Stretch.

- 1873—Stretch, Zyg. & Bomb., 187, pl. 8, f. 7, *Euchaetes*.
- 1874—Linn.*, Ent. Cont., III., 145, *Euchaetes*.
- Habitat—Oregon, Texas, New York.

E. perlevis Grt.

- 1882—Grt., CAN. ENT., XIV., 196, *Euchaetes*.
- 1882—Grt., Papilio, II., 131, *Euchaetes*.
- Habitat—Arizona.

E. pudens Hy. Edw.

1882—Edw., Papilio, II., 126, *Euchaetes*.
 1882—Grt., CAN. ENT., XIV., 196, *Euchaetes*.
 Habitat—Texas.

E. sepsiformis Graef.

1887—Graef, Ent. Amer., III., 43, *Euchaetes*.
 Habitat—Texas.

E. spraguei Grt.

1875—Grt., CAN. ENT., VII., 200, *Euchaetes*.
 1877—Grt., CAN. ENT., IX., 85, *Euchaetes*.
 1882—Grt., Papilio, II., 111, *Euchaetes*.
 1882—Grt., CAN. ENT., XIV., 196, *Euchaetes*.
 Habitat—Kansas, Texas.

E. vivida Grt.

1882—Grt., Papilio, II., 131, *Euchaetes*.
 1882—Grt., CAN. ENT., XIV., 196, *Euchaetes*.
 Habitat—South-western Texas.

E. yosemite Hy. Edw.

1883—Edw., Papilio, III., 146, *Euchaetes*.
 Habitat—San Jose Valley, California.

E. zonalis Grt.

1882—Grt., Papilio, II., 131, *Euchaetes*.
 1882—Grt., CAN. ENT., XIV., 196, *Euchaetes*.
 Habitat—Arizona.

The genus *Vanessodes* G. & R., which Mr. Grote inserts in this place seems to be a *Lithosian*. I cannot demonstrate ocelli in any specimens I have examined. The venation and habitus is also Lithosiform rather than *Arctiid*.

Genus ARACHNIS Hbn.

1837—Hübner, Zutrage, 457.
 1873—Stretch, Zyg. & Bomb., 83.

Head very small, retracted; palpi small; tongue short and weak, not longer than the head. Legs short and stout; tibiae with the spurs normal in number, but very short.

Primaries with 7 to 10 on a stalk, 10 branching a very short distance from the end of the subcostal, 7 to 9 branching rather beyond the middle of the common vein; 3, 4 and 5 almost equidistant from the end of the median.

Secondaries with 6 and 7 forking from the subcostal slightly before the end of the cell; 3, 4 and 5 very close together from the end of the median.

The antennae are simple in both sexes, and the tarsal claws are also simple.

A. picta Pack.

1864—Pack., Proc. Ent. Soc., Phil., III., 126, *Arachnis*.

1873—Stretch*, Zyg. & Bomb., 83, pl. 3, f. 6, ? = *aulaea*.

1876—Moeschl., Stett. Ent. Zeit., XXXVII., 298, *Arachnis*.

Habitat—California, Colorado.

Food plant—*Lupinus* sp.

A. aulea Geyer.

1837—Geyer, Zutraege, 913, 914, *Arachnis*.

1860—Clem., Proc. Ac. N. Sci., Phil., XII., 526, *Arachnis*.

1869—Bdv., Lep. Cal. (Ann. Soc. Ent., Belg., XII.), 78, *Ecpanterheria*.

1873—Stretch, Zyg. & Bomb., 86, *Arachnis*.

1876—Moeschler, Stett. Ent. Zeit., XXXVII., 298, *Arachnis*.

incarnata Wlk.

1855—Wlk., C. B. Mus., Lep. Het., III., 690, *Ecpanterheria*.

1860—Clem., Proc. Ac. Nat. Sci., Phil., XII., 524, *Ecpanterheria*.

1865—Wlk., C. B. Mus., Lep. Het., XXXI., 300, *pr. syn.*

Habitat—California, Mexico.

Whether we have here to do with one or two species is a question? Packard, in describing his species, does not refer to *aulaea* at all. Moeschler says the difference between the two is that in *picta* the costal margin of primaries beneath is yellow, whereas in *aulaea* it is red. Whether or not the Mexican form is different from the Californian examples must be settled by those who have the material. All the California specimens I have ever seen refer to the *picta* variety.

Genus *EUERYTHRA* Harv.

1876—CAN. ENT., VIII., 5.

1887—Smith, Proc. U. S. Nat. Mus., X., 335.

Head moderate in size, scarcely retracted ; tongue weak ; palpi small, longer in the ♀. Antennae of ♂ bipectinated, of the ♀ simple. Legs almost equal in length, spurs normal in number but short.

Primaries with 7 to 10 stalked, out of the same point with 6 from the end of the subcostal ; 3, 4 and 5 from the end of the median, 4 more remote from 3 than from 5.

Secondaries without costal vein, subcostal extended some little distance beyond the end of the cell and forking to give off 6 and 7 ; 3, 4 and 5 from the end of the median, 5 rather more remote from 4 than is 3.

For further details I would refer the student to my paper in Proc. U. S. Nat. Mus., X., 335.

E. phasma Harv.

1876—Harv., CAN. ENT., VIII., 5, *Euerythra*.

1887—Smith, Proc. U. S. Nat. Mus., X., 336, *Euerythra*.

Habitat—Texas.

E. trimaculata Smith.

1887—Smith, Ent. Amer., III., 17, *Euerythra*.

1887—Smith, Proc. U. S. Nat. Mus., X., 336, *Euerythra*.

Habitat—Texas.

The two species are closely allied, but are, I believe, distinct.

Genus ECPANTHERIA Hbn.

1816—Hübner, Verzeichniss, 183.

1855—Walker, C. B. Mus., Lep. Het., III., 668.

1862—Morris, Synopsis, 347.

1873—Stretch, Zyg. & Bomb., 174.

Tongue very short and weak. Legs short and stout, subequal in length ; middle and posterior tibiae with minute terminal spurs only. Tarsi short, the claws split nearly to the base in both sexes. Antennae of the male serrate, of the female simple.

Primaries with 6 to 10 stalked out of the end of the subcostal, 6 branching off almost immediately, 10 a little further on, 7 more than half way to apex, while 8 and 9 divide just before the apex ; 3, 4 and 5 from the end of the median, 4 nearer to 5 than to 3.

Secondaries with 8 from the subcostal unusually close to base ; 6 and

7 from the same point at the end of the subcostal; 4 and 5 from the same point at end of median, 3 very close to the same source.

The wing form of the genera has not been described very generally in these notes, but in this genus it may be added that the secondaries are disproportionately small and tend to become caudate.

E. permaculata Pack.

1872—Pack., 4th Rept. Peab. Ac. Sci., 86, *Leucarctia*.
reducta Grt.
 1877—Grt., Bull. U. S. Geol. Surv., III., 799, *Ecpanteria*.
 1887—Bruce, Ent. Amer., III., 14, *Ecpanteria*.
cæca Strk.
 1884—Strk., Proc. Ac. Nat. Sci., Phil., XXXVI., 283, *Ecpanteria*.
 Habitat—Colorado, Arizona, So. California.

Dr. Packard's term *permaculata* seems to have become lost in some way. It is not referred to in Mr. Grote's list, and Mr. Edwards does not mention it in his additions in Ent. Amer., III. It refers without doubt to the *reducta* of Grote. Mr. Bruce has taken it quite abundantly in Colorado.

E. scribonia Stoll.

1787—Stoll*, Sup. to Cramer's Pap. Ex., f. 177, pl. 41, f. 3, *Phalaena*.
 1816—Hbn., Verzeichniss, 183, *Ecpanteria*.
 1825—Hbn., Samml. Ex. Schmett., pl. 403, *Ecpanteria*.
 1855—Wlk., C. B. Mus., Lep. Het., III., 689, *Ecpanteria*.
 1860—Clem., Proc. Ac. Nat. Sci., Phil., XII., 523, *Ecpanteria*.
 1862—Harris*, Injurious Insects, 349, *Ecpanteria*.
 1862—Clem., App. to Morris, Syn., 347, *Ecpanteria*.
 1863—Saund.*, Proc. Ent. Soc., Phil., II., 28, *Ecpanteria*.
 1863—Saund.*, Syn. Can. Arct., 22, *Ecpanteria*.
 1864—Pack., Proc. Ent. Soc., Phil., III., 127, *Ecpanteria*.
 1868—Bdv., Lep. Cal. (Ann. Soc. Ent., Belg., XII.), 78, *Ecpanteria*.
 1872—Riley*, 4th Rept. Ins. Mo., 141, ff. 63, 64, *Ecpanteria*.
 1873—Stretch*, Zyg. & Bomb., 174, pl. 7, ff. 20 (♂) and 21 (♀),
Ecpanteria.
 1882—Saund*, CAN. ENT., XIV., 113, f. 12 and 13, *Ecpanteria*.
 1888—Slosson, Ent. Amer., III., 185, *Ecpanteria*.
oculana Fabr.

1775—Fabr., Syst. Ent., 564, *Bombyx*.
 1781—Fabr., Sp. Ins., II., 177, *Bombyx*.
 1787—Fabr., Mant. Ins., II., 112, *Bombyx*.
 1791—Oliv., Enc. Meth., V., 44, *Bombyx*.
 1793—Fabr., Ent. Syst., III., 1, 425, *Bombyx*.
 1797—Sm. Abb., Ins. Ga., II., 137, *Phalæna oculatissima*.
 1855—Wlk., C. B. Mus., Lep. Het., III., 689, *pr. syn.*
oculatissima Sm. Abb.
 1797—Sm. Abb*, Ins. Ga., II., 137, pl. 69, *Phalæna*.
 1841—Duncan, Nat. Libr., XXXII., pl. 30, f. 4.
 1864—Pack., Proc. Ent. Soc., Phil., III., 127, *pr. syn.*
cunegunda Cramer.
 1782—Cram., Pap. Exot., IV., 104, pl. 344, f. D. E., *Phalæna*.
 1805—DeB., Ins. Afr. et Am., 134, pl. 24, f. 4, *Bombyx*.
 1865—Grt. & Rob., Ann. Lyc., N. Y., VIII., 368, *pr. syn.*
 var. *denudata* Slosson.
 1888—Slosson, Ent. Amer., III., 212, *Ecpanteria*.
 Habitat—Canada to Florida, to Texas, to California.
 Food plant—Omnivorous.

I do not see why the term *oculana* Fabr. should not be restored for this species, but do not make the substitution lest there be some reason I have not yet discovered, to prevent it. Walker makes the reference, but retains the later name. Packard cites Walker, but does not refer at all to *oculana*, although *oculatissima* is referred to in the synonymy. Smith and Abbot refer to *oculana* as identical with their form, and also cite Cramer's figure of *cunegunda*, which also antedates *scribonia*.

E. sennettii Lint.

1884—Lintner, Papilio, IV., 147, *Ecpanteria*.

Habitat—Texas.

Genus NELPHE Boisd.

I do not know this genus at all, either autoptically or by description. The only described American species is:

N. carolina Hy. Edw.

1886—Edw., Ent. Amer., II., 166, *Nelphe*.

(To be continued.)

NOTES ON ARGYNNIS FREYA, CHARICLEA AND MONTINUS.

BY H. H. LYMAN, MONTREAL.

As is well known to readers of the *CANADIAN ENTOMOLOGIST*, Mr. Scudder, in his sumptuous work on the Butterflies of New England recently published, stated that Mr. Edwards had confused the two northern species, *Argynnis Freya* and *Chariclea*. This was denied by Mr. Edwards in the April number of this journal and Mr. Butler's authority was invoked to prove that Mr. Scudder had himself transposed these names. Here the matter rests, but as I think that I can throw some additional light on the question I shall endeavour to do so.

In the preface to Mr. Scudder's work he states that "twenty years ago the present work was definitely planned, announced and begun and the greater part of it has been written for fifteen years," though he adds that much of it was rewritten within the past few years.

On page X. of the same preface, in speaking of the appendix in which certain butterflies not found in New England are described, he says: "It was, however, an afterthought not entering into the original plan * * * * it has, indeed, been written during the printing of the work." This fact that the first volume was written fifteen or more years ago and the third only last year, no doubt explains the contradictory statements in reference to the affinities of *Argynnus Montinus* which appear in these volumes.

On page 604 of the first volume Mr. Scudder, in speaking of *A. Montinus*, says: "This species is certainly distinguishable from *B. chariclea* (Schneid), or *B. chariclea boisduvalii* (Somm.), both of which forms have been found by Mr. Couper on the northern shore of the Bay of St. Lawrence. Whether it should be looked upon merely as a geographical race, or as a species, is a question about which there may be easy difference." This certainly implies a very close connection between these forms, and in the original description of *Montinus*, in Scudder's "List of the Butterflies of New England," published in the Proceedings of the Essex Institute in April, 1863, reference to which he curiously enough omits from his recent work, he began his description with "Very similar to *A. Chariclea*."

So far so good, but on turning to the appendix in the third volume, page 1807, under the heading of *Brenthis freija* Thunb., which is the same as *Freya* Hüb., he says: "This species is very closely allied to

B. Montinus." Now, these two statements are quite irreconcilable, for while it is quite true that some so-called species stand so close together that a third may be quite correctly described as very close to both, this is certainly not the case with the species in question, which are very distinct. I think it will therefore be conceded that Mr. Scudder is wrong in one of these statements, and we can therefore proceed to examine which is erroneous, and I believe it will be found that in this case second thoughts were not best.

Both *Chariclea* and *Freya* occur in Europe and have been studied and illustrated by European entomologists. *Freya*, or *Freija*, is figured and described in Boisduval's *Icones*, p. 100, pl. 19, fig. 4, 5, and in the same work there is a description and figure (p. 98, pl. 20, fig. 5, 6) of *A. Boisduvalii*, which all the authorities that I have been able to consult, with possibly one exception, concede to be but a variety of *Chariclea*. Both of these references were omitted by Kirby from his catalogue and the former was overlooked by both Edwards and Scudder, but both are given in Strecker's catalogue. The figures in Boisduval's work, though inferior to those to which Messrs. Edwards and Scudder have accustomed us, are still sufficiently accurate to prove that it is truly *Chariclea*, as stated by Mr. Scudder in his first volume, to which *A. Montinus* is allied.

Mr. Scudder also makes the mistake of giving, doubtfully it is true, *M. Tarquinius* Curtis as a synonym of *A. Boisduvalii*, while all the other authorities give it as a synonym of *Freya*. From its description in the appendix to the "Narrative of Sir John Ross," it must certainly be very close to *Freya*, and is probably identical with it, but it has no connection with *Chariclea* or its variety, *Boisduvalii*. It thus appears that Mr. Scudder must have confused these species, and so transposed their names, a very curious mistake, and apparently similar to that which he formerly made in regard to *Phyciodes Harrisii* and *Nycteis*, to which I called his attention in 1878.

As there are doubtless many readers of this journal who are not familiar with these northern species of *Argynnис*, a few descriptive notes may not be out of place.

Chariclea may be described as somewhat like *Myrina* upon the upper side, though the markings are heavier, especially upon the secondaries, and it is rather more deeply shaded at the bases of the wings. There is, however, a very striking difference in the fact that in *Chariclea* the cres-

cent-shaped markings on the hind wings open outwards, while in *Myrina* they are much lighter and open inwards. There is, of course, no similarity between these species on the under side.

Freya is strikingly different from *Chariclea* upon both the upper and the under surfaces. Above the colour is duller and the bases of the wings are very heavily shaded; in fact, in the case of the secondaries, this shading extends over nearly the half of the wing. In *Chariclea* the black so-called mesial band is composed of a series of almost straight bars placed rather irregularly, while in *Freya* it is made up of a series of deep lunules. A like difference may be observed on the secondaries, but it is not quite so marked. On the under side of primaries similar differences are observable, although the markings are lighter; but the under side of secondaries show the most marked differences, for the beautiful band of pearly lunules crossing the wings just outside of the mesial black band in *Freya* has no counterpart in *Chariclea* and the course of the black band in its deep lunules is also very distinct.

There are many other points of difference between these species, but it is not very easy to indicate them clearly without going into a tedious description.

Mr. Scudder's descriptions of these species being reversed, what he says of *Freija* belongs really to *Chariclea*, and vice versa. These descriptions are given in great detail and are generally correct, but contain several curious errors. For instance, in describing the primaries of his *Freija*, but really *Chariclea*, he says: "Within the mesial band are three narrow transverse bands crossing the cell, the innermost not reaching the median nervure; within these is a small lunule opening outward." Surely he should have said inward, as the concave side of the lunule is towards the base of the wing. I might also allude to the fact that he says that the mesial band starts "a little beyond the middle of the costa"; as it really starts at a point very nearly two-thirds from the base of the wing I consider his statement rather loose for a man as particular as Mr. Scudder is known to be. Similarly in describing *Freya*, or *Freija*, he says that the black mesial band of primaries starts at the middle of the costa, while it is really not less than three-fifths from the base. In describing this form he omits to mention the small lunule inside the three bars crossing the cell, though it is recognizable, at least in my specimens, in spite of the heavy shading just inside of it, and he also fails to observe that the

black mark below the first divarication of the median nervure is angulated in a similar manner to that in the other species. But the most curious statement is that which he makes in speaking of the underside of primaries, where he says that "the sagittate spots are more delicate, and the nervules beyond them are distinctly yellowish or white," whereas these yellowish or white lines are on the creases forming the centres of the interspaces and not on the nervules at all.

There are other slips in these two descriptions, but mention of these is sufficient to show that Mr. Scudder's descriptions, though laboured, are not always quite accurate. Mr. Scudder also speaks of these species as flying—one in May, or early in June, and the other late in August, or early in September. At Laggan, however, where my specimens were collected by Mr. Bean, the difference of seasons was not so marked, as *Freya* was obtained May 11th and 16th, and *Chariclea* June 29th to July 18th. The latter occurs, however, later than this, and is doubtless found up to the end of August.

ON THE LISTS OF COLEOPTERA PUBLISHED BY THE
GEOLOGICAL SURVEY OF CANADA, 1842-1888.

BY W. HAGUE HARRINGTON, OTTAWA.

(Continued from page 160, Vol. xxii.)

SCARABEIDÆ.

Onthophagus Hecate Panz. A.O., W., S.M.

Aphodius fessor Linn. St.L.

validus Horn. W.

fimetarius Linn. A.O., St.L., T.L.

ruricola Melsh. W.

foetidus Fab. T.L.

pectoralis Lec. B.C.

granarius Linn. S.M.

leopardus Horn. Y.F., N.O., O.

Geotrupes Egeriei Germ. A.O.

Dichelonycha subvittata Lec. A.O., St.L.

Backii Kirby. B.C., M.

Serica tristis Lec. S.M.

*

Diplotaxis brevicollis *Lec.* B.C.
 Lachnosterna fusca *Fröh.* L'O., St.L., B.C., S.M.
 Osmoderma eremicola *Knoch.* L'O.
 scabra *Beauv.* A.O.
 Trichius piger *Fab.* A.O.
 affinis *Gory.* N.O., W., S.M., O.K.

SPONDYLIDÆ.

Spondylis upiformis *Mann.* B.C.

CERAMBYCIDÆ.

Orthosoma brunneum *Forst.* (*unicolor Drury*). L'O.
 Asemum atrum *Esch.* B.C.
 Criocephalus agrestis *Kirby.* N.C., Y.F., C.L., S.M., O., N., C.R.
 Tetropium cinnamopterum *Kirby.* O.
 Gonocallus collaris *Kirby.* C.R.
 Hylotruples ligneus *Fab.* [*Physocnemum*]. St.L., O.
 Phymatodes dimidiatus *Kirby.* B.C.
 Merium proteus *Kirby.* B.C., Y.F., N.O., C.L., O., N., C.C., C.R.
 Xylotrechus undulatus *Say.* N.C., N.O., C.L., S.M., O., N., C.R.
 Neoclytus muricatus *Kirby* [*leucozonus Lap.*]. N.O.
 Desmocerus palliatus *Forst.* S.M.
 Encyclops caeruleus *Say.* A.O.
 Rhagium lineatum *Oliv.* O.
 Pachyta monticola *Rand* (*Evodinus*). A.O.
 liturata *Kirby.* B.C., C.L., N.
 Achmæops proteus *Kirby.* A.O., N.O., O., C.R.
 pratensis *Laich.* N.C., N.O., S.M.
 Leptura subargentata *Kirby.* B.C., N.C.
 var. similis *Kirby.* N.O.
 sexmaculata *Linn.* N.C., O., C.R.
 nigrella *Say.* C.R.
 canadensis *Fab.* A.O., O.K.
 chrysocoma *Kirby.* N.C., S.M.
 proxima *Say.* A.O.
 vittata *Germ.* A.O.
 pubera *Say.* A.O., S.M.

mutabilis *Newm.* A.O.
 aspera *Lec.* S.M.
Monohammus maculosus *Hald.* S.M.
scutellatus *Say.* A.O., St.L., N.C., Y.F., N.O., S.M., M., H.M.,
 M.F., O.K., O., N., C.R.
race oregonensis *Lec.* B.C.
confusor *Kirby.* A.O., St.L.
marmorator *Kirby.* H.M.
Pogonoherus penicellatus *Lec.* H.M., O.K., O.
mixtus *Hald.* N.C.
Saperda vestita *Say.* L'O.
tridentata *Oliv.* A.O.

CHRYSOMELIDÆ.

Donacia pubicollis *Suffr.* O.K.
palmata *Oliv.* A.O.
hirticollis *Kirby.* C.L., M.F., N.
magnifica *Lec.* C.L., C.C.
proxima *Kirby.* N.O., C.L., M.F., C.C., R.A.
subtilis *Kunze.* A.O., C.L., H.M., C.C., R.A.
æqualis *Say.* O.K.
cuprea *Kirby* [*pusilla* *Say.*]. A.O., T.L., N.
aurea [? misprint for *aurifer* *Lec.*, =var. *cuprea*]. M.F.
flavipes *Kirby.* A.O., T.L.
Orsodacna atra *Ahr.* [*Childreni* *Kirby*]. B.C., N.C.
Syneta ferruginea *Germ.* [*tripla* *Say.*]. A.O., B.C.
Cryptocephalus 4-maculatus *Say.* C.C.
Adoxus obscurus *Linn.* [*vitis* *Fab.*]. A.O., B.C., N.C., O.K., N.
Chrysochus auratus *Fab.* A.O., S.M.
Graphops marcassita *Cr.* S.M.
Entomoscelis adonidis *Fab.* B.C.
Prasocuris Phelandrii *Linn* [*Helodes trivitta* *Say*]. L'O.
varipes *Lec.* S.M.
Doryphora clivicollis *Kirby* [*Chrysomela trimaculata* *Fab.*]. L'O.
10-lineata *Say.* S.M.
Chrysomela scalaris *Lec.* A.O., St.L.
philadelphica *Linn.* S.M., T.L.

var. spirææ Say. A.O., N.C.
multipunctata Say, race verrucosa Suffr. B.C.
Plagiodesma oviformis Lec. B.C.
Gastroidea polygoni Linn [Gastrophysa]. W.
cyanea Melsh [Gastrophysa] W., N.
Lina lapponica Linn [Plagiodesma interrupta Fab.]. A.O., B.C., C.I.,
 O.K., C.R., *var.*
scripta Fab. O.K.
Gonioctena arctica Mann. N.C.
pallida Linn [rufipes DeG.]. B.C., Y.F., N.O., O., N.
Phyllolecta vitellinae Linn. A.O.
Phyllobrotica decorata Say. A.O.
Galeruca sagittariae Gyll. A.O., B.C. ? *var.*, N.O., C.L., H.M.,
 O.K., O., N., C.C.
Hypolampsis pilosa Ill. C.L.
Oedionychis lugens Lec. B.C.
scripta [? misprint for scripticollis *Say* = *var* vians Ill.]. C.L.
Disonycha collaris Fab. [Haltica]. L'O.
Haltica bimarginata Say [Graptodera]. B.C., N.C., N.O., M.F.
evicta Lec. [Graptodera]. B.C.
Crepidodera mancula Lec. B.C.
Systema frontalis Fab. A.O.
Chelymorpha argus Licht. [cribraria Fab.]. L'O., W.

TENEBRIONIDÆ.

Phelopsis porcata Lec. B.C.
Coniontis ovata [? misprint for ovalis Esch.]. B.C.
Eleodes cordata Esch. B.C.
Nyctobates pennsylvanicus DeG. (Iphimus). L'O.
Iphimus opacus Lec. S.M.
Upis cerambooides Linn. (reticulatus *Say*). A.O., St.L., B.C., C.L.,
 S.M., O.K., O., N., C.C., R.A.
Tenebrio molitor Linn. L'O., N.O., W., S.M.
tenebriodes Beauv. S.M.
Blapstinus moestus Melsh. S.M., H.M.
interruptus Say. S.M.
Hypophloeus punctatus [misprint ?]. B.C.
Boletotherus bifurcus Fab. (Bolitophagus cornutus Pz.). A.O.

CISTELIDÆ.

Isomira quadristriata *Coupl.* S.M.
Hymenorus pilosus *Melsch.* S.M.

LAGRIIDÆ.

Arthromacra aenea *Say.* S.M.

MELANDRYIDÆ.

Penthe obliquata *Fab.* M.F.
Serropalpus barbatus *Schall.* [substriatus *Hd.*]. St.L., O.
Stenotrachelus arctatus *Say.* N.C., M.F., O.

PYTHIDÆ.

Crymodes discicollis *Lec.* B.C.

CEPHALOIDÆ.

Cephaloon tenuicorne *Lec.* B.C.

MORDELLIDÆ.

Mordellistena vitis [? misprint for *vilis Lec.*]. B.C.
nigricans *Melsch.* A.O.

ANTHICIDÆ.

Corphyra lugubris *Say.* S.M.
collaris *Say.* (*Pedilus*). A.O.

MELOIDÆ.

Meloe angusticollis *Say* (*rugipennis Lec.*). A.O., St.L., N.
americanus *Leach.* N.C.
Macrobasis unicolor *Kirby.* S.M., O.K.
Cantharis cyanipennis *Say.* B.C.

OTIORHYNCHIDÆ.

Evotus naso *Lec.* B.C.

CURCULIONIDÆ.

Sitones flavescens *Marsh.* (*lepidus Gyll.*). A.O.
Trichalophus alternatus *Say.* B.C.
Lepyrus gemellus *Kirby.* N.
colon *Linn.* B.C., N.G.

Pissodes strobi *Peck.* H.M.
costatus *Mann.* B.C.
dubius *Rand.* H.M.
Hylobius pales *Hbst.* A.O., S.M., O., C.R.
confusus *Kirby.* S.M.
Hypomolyx pineti *Fab.* [*pinicola Coup.*]. A.O. (near pineti), O., N., C.R.
Lixus caudifer *Lec.* B.C.
Dorytomus laticollis *Lec.* B.C.
Acalyptus carpini *Hbst.* Y.F.
Baris confinis *Lec.* S.M.

CALANDRIDÆ.

Dryophthorus corticalis *Say.* S.M.

SCOLYTIDÆ.

Xyloterus bivittatus *Kirby.* T.L.
Dryocœtes septentrionis *Mann.* B.C.
Dendroctonus rufipennis *Kirby* [*obesus Mann.*]. B.C.

ANTHRIBIDÆ.

Gonotropis gibbosus *Lec.* C.C.
 Report of Progress, 1882-83-84, p. 62d.
 List of Coleoptera collected by J. R. Spencer, at Fort Churchill,
 (determined by Mr. J. B. Smith for Mr. James Fletcher, 14 species).
Carabus chamissonis *Fisch.*, var. *baccivorus* *Fisch.*
Pterostichus hudsonicus *Lec.*
Amara hyperborea *Dej.*
similis *Kirby.*
Agabus [*Gaurodytes*] *griseipennis* *Lec.*?
Colymbites sculptilis *Harr.*
Dytiscus dauricus *Gebl.* [*confluens Lec.*].
Cryptohypnus abbreviatus *Say.*
Criocephalus obsoletus *Rand.*
Neoclytus conjunctus *Lec.*
Pachyta liturata *Kirby.*
Acmaeops proteus *Kirby.*
 Two species unknown to Mr. Smith.

Annual Report (new series), Vol. I., 1885, p. 26dd.

List of Coleoptera collected in 1885, by Dr. Robert Bell, in connection with the Hudson's Bay expedition, (determined by Dr. G. H. Horn for Mr. W. H. Harrington, 10 species).

Stupart's Bay.

Amara hypoborea Dej. Over 100 specimens.

Pterostichus hudsonicus Lec.

Hydroporus longicornis Sharp. Occurs in Europe.
perplexus Sharp.

Agabus dissimilis Sahlb. [*longulus* Lec. ?]. Fifty specimens.

After the list was printed, Dr. Horn sent specimens of this species, which he had referred with doubt to *longulus* Lec., to Dr. Sharp, who determined them to belong to *dissimilis* Sahlb.

Cape Chudleigh.

Nebria Sahlbergi Fisch.

Amara hyperborea Dej.

Lepyrus colon Linn.

Cape Digges.

Amara hyperborea Dej.

Agabus dissimilis Sahlb. [*longulus* Lec. ?].

Criocephalus agrestis Kirby.

Blanc Sablon.

Nebria Sahlbergi Fisch.

Pterostichus Luczottii Dej.

Quedius sublimbatus Mäkl.

Annual Report (new series), Vol. III., p. 75j.

List of Coleoptera taken on the South Coast and Islands of James Bay, by Mr. J. M. Macoun, in 1887, (determined by Mr. James Fletcher, Dominion Entomologist, 21 species).

Cicindela 12-guttata Dej.

Calosoma frigidum Kirby.

Chlaenius sericeus Forst.

Silpha lapponica Hbst.

Buprestis maculiventris Say.

Asemum moestum Hald.

Criocephalus obsoletus Rand.

Xylotrechus undulatus Say.

Rhagium lineatum *Oliv.*
Pachyta liturata *Kirby.*
Acmæops proteus *Kirby.*
Leptura chrysocoma *Kirby.*
Monohammus scutellatus *Say.*
Orsodacna atra *Ahr.*
Adoxus obscurus *Linn.* [vitis *Fab.*.]
Lina lapponica *Linn.*
Gonioctena pallida *Linn.*
Upis ceramboides *Linn.*
Lepyrus colon *Linn.*

P.S.—Line 18, page 155, should read longulus *Lec.* [Gaurodytes].
Y.F.

BOOK NOTICE.

THE PHYCITIDÆ OF NORTH AMERICA, BY GEO. D. HULST.

This valuable paper forms number 2, volume 17, of the Transactions of the American Entomological Society. The author not only gives us what has been done on this family by others, but also the results of his own critical and long continued study and investigation.

He complains of difficulties in the study of these insects owing to the fact that so many of the types are in European museums, and further, that so many are in private collections. There may be some question whether this last is not an advantage, for, as a rule, private collections are more easily accessible than public ones, and the visitor is not hampered by stringent rules. There is but little use to attempt the study of microlepidoptera in a museum where the rules forbid the removal of an insect from the trays, as is the case in many.

The Phycitidæ are given family rank "in the super-family Pyralidæ," and after the family characters, the literature of the subject is quite fully and very fairly given, which is always a difficult task. Mr. Hulst divides the family into two sub-families, based on the presence or absence of the lower anal plate, and differs from Ragonot, who divides them on the development of the tongue. From my own studies I am inclined to agree with Mr. Hulst.

The structure of the imago is treated thoroughly and exhaustively.

This part of the work is a model worthy of imitation by other systematic writers. When all our insects have been studied in this careful manner and then monographed, we shall have a sound basis for further work.

A vast field is open for future investigation on the early stages of these insects, and undoubtedly our economic entomologists will, in time, give us much valuable information in this direction now that the way is made clear.

The author states that he "takes little interest, comparatively, in the guesses which are made of the ancestry of any group of the Lepidoptera." I am greatly surprised that he should decline to enter upon this fashionable field of conjecture. A person may as well be out of the world as out of fashion!

There are given synopses of the sub-families and of the genera, and under each genus is a synopsis of the species. A valuable feature is the giving of the type under each genus and the full synonymy. A list of undetermined species is also given with the original descriptions. Seven of these are Walker's species and the remaining three were published by Clemens. It would have been a great satisfaction if Mr. Hulst had given us the correct pronunciation of the generic names, especially those of Indian origin, for some of us may forget our Latin so far as to pronounce some of them incorrectly.

Under Notes on other Species, p. 221, by a slip it is stated that *Nephopteryx intractella* Walk. is a synonym of *Blepharomastix ranalis* which is itself a synonym of *Botis similalis* Guen. As the information went from me, and I may have made the slip myself in writing, I take this occasion to correct and say that *Nephopteryx intractella* Walk. is a synonym of *Nymphula similalis* Guen., and is given in Grote's Check-List under the name of *Eurycreon rontalis* Guen. See Ent. Am., Vol. 5, p. 211.

At the end is given a catalogue of the Phycitidae of North America, comprising 71 genera and 201 species, followed by three plates of structural details.

On the whole this is one of the most satisfactory papers on the micro-lepidoptera I have ever seen, and it is "devoutly to be wished" that Mr. Hulst will immediately take up the Geometridae and treat them in as thorough and complete a manner as he has the Phycitidae.

C. N. FERNALD.

